

ABSTRACT OF THE DISCLOSURE

Materials and methods inhibit the localized build-up of material with respect to certain additive manufacturing processes, including those based on ultrasonic consolidation. Where an object is fabricated by consolidating material increments from a feedstock in accordance with a description of the object, the invention prevents the consolidation in specified regions to provide for an intrinsic support or to otherwise build a part or component in accordance with the description. The object being fabricated, the feedstock, or both, may be treated so as to inhibit the consolidation of material increments in the localized area. That is, such treatment may affect the surface chemistry of the feedstock to prevent local bonding, or the treatment may be applied to a previously built surface of the object. The treatment may include the introduction of an oxidizer, such as a metal nitrate, chlorate, chromate, peroxide, or manganate; a base or alkali; or a coating of a lubricious material such as tin, Teflon, or petroleum distillates to prevent the breakup of an oxide layer.